

TO: Al Minner, City Manager

FROM: Ray Sharp, Asst. City Manager

DATE: January 21, 2014

SUBJECT: Commission Report – Update on Smart Grid Project Status

This report summarizes the component parts of the overall Smart Grid Project, provides current schedule status of each, and provides an overview of the cost of the project to date.

It is important to note that the Smart Grid project comprises more than just smart meters and the associated infrastructure. At its completion, Smart Grid will: (1) automate the meter reading process; (2) provide an avenue for consumers to shave peak power usage through Time of Use rates and Programmable Communicating Thermostats; and (3) engage the Demand Side Management programs of large commercial customers. The list below details each of the functional components of the total project.

1. Electric Meters – The new electric meters provide essentially three functions: they record and store readings every fifteen minutes, they transmit the readings periodically to the utility, and they provide a network communications interface to programmable in-home devices (programmable communicating thermostats.) The new meters also allow a customer service representative to obtain an immediate current reading when that information would be helpful to assist a customer. Meters which serve residential and small business customers also have the capability to remotely connect or disconnect services which will improve billing and customer service functions.
2. Communications Network – The communications network is the pathway between the meters and the utility. The two parts of the communications network are the wireless network that the meters use to transmit their data to access points and the city's fiber optic system that transmits the data from the access points to the utility. The communications network allows the meters to transmit remotely.
3. Cyber Security – Given the sensitivity of the data and its various uses, the city implemented a cyber security program.
4. "Peak Shaving" – The city deployed distributed generation with commercial customers in 2009. At present, it includes not only city-owned emergency generators, but includes generators at several of our largest commercial customers and an number of solar photovoltaic arrays.
5. Electric System Upgrades – These system upgrades made improvements to Leesburg's five electric substations including: (1) installation of two new substation transformers with automated monitoring; (2) control features that use the Smart Grid communications network;

(3) replacement of obsolete feeder breakers; and, (4) standardization of major relays.

Additionally, due to remaining funds and system impact, the Airport substation was upgraded with a Fault Detection, Isolation, and Restoration system that integrates and automates four circuits with Smart Grid communications technologies. This action aims to improve redundancy and reliability in the area around Lake Square Mall, serving about 3,700 customers. Future substation projects will be implemented, as circumstances and funds permit.

6. Demand Side Management – The utility will utilize a number of strategies for demand response. Two of these have already been deployed: Peak Shaving (discussed earlier), and Conservation Voltage Reduction. Two additional strategies which are part of the Smart Grid project are Time of Use rate plans and installation and remote operation of load control devices which include Programmable Communicating Thermostats.
7. Rate Structures – The city has already adopted two optional Time of Use rate plans, and will adopt, at a suitable time, a Peak Time Rebate plan for customers with Programmable Communicating Thermostats or other utility-controlled load control devices.
8. Outage Management – The Outage Management System uses the Smart Grid Communications Network and meter status data to quickly identify location, extent and nature of outages in the electric system. This information is transmitted and plotted on the utility system map then alerts system operators concerning outages and the status of protective devices.
9. Customer Outreach – This is an on-going customer outreach and education effort to inform our customers of the benefits our utility system offers. This also includes marketing of the various demand management options available to our residential customers, as they become available.
10. Project Support – The in-house work product necessary to implement the Smart Grid project, primarily in IT and Customer Service areas.

Project Milestones

The table below summarizes the status of each of these ten components.

Description	Current Status	Actual/Scheduled Completion
1. Electric Meters	Complete	August, 2012
2. Communications Network	Complete	June, 2012
3. Cyber Security	Complete	August, 2013
4. Peak Shaving	Complete	January, 2011
5. Electric System Upgrades	80% Complete	April, 2014
6. Demand Side Management	50% Complete	April, 2014
7. Rate Structures	66% Complete	March, 2014
8. Outage Management	40% Complete	March, 2014
9. Customer Outreach	N/A	On-Going Activity
10. Project Support	N/A	On-Going Activity

Project Finances

The total Smart Grid authorized project budget is \$20.7 million, which is partially funded by \$10.99 million in grants from the US Department of Energy and the State of Florida. The remainder of the project is funded by the electric utility, primarily through a bank loan in the amount of \$9.0 million, at an interest rate of 3.04% and annual debt payments of \$630,600, which retires in 2032.

The table following summarizes the project budget.

Funding Source	Amount
DOE SGIG	\$9,748,812.50
Florida EECBG	\$1,240,000.00
Leesburg Electric	
Bank Loan	\$9,000,000.00
Utility Cash	\$748,812.50
Total Leesburg Electric	\$9,748,812.50
Total Authorized Project Budget	\$20,737,625.00
Current Project Budget	\$20,734,796.00

GRANT SUMMARY DOE Reimbursement to Date	
Total Expenses Submitted	\$14,446,619.62
Reimbursements Received (50%)	\$ 7,223,309.81

The following table summarizes the budget and project-to-date cost of the project by the ten functional areas described above.

Description	Budget	Actual Cost Through 12/2013
Electric Meters	\$11,491,838	\$10,154,528
Communications Network	\$379,857	\$379,857
Cyber Security	\$179,094	\$179,094
Distributed Generation	\$2,026,926	\$2,023,926
Electric System Upgrades	\$3,684,056	\$3,040,278
Demand Response	\$53,538	\$24,445
Rate Structures	\$108,890	\$66,316
Outage Management	\$193,684	\$86,552
Customer Outreach	\$75,000	\$33,372
Project Support	\$2,541,913	\$2,438,869
Total	\$20,734,796	\$18,430,235
Remaining Project Funds		\$2,304,561